

Method for Identifying Probable Archaeological Sites from Remotely Sensed Data

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Abstract

Archaeological sites are being compromised or destroyed at a catastrophic rate in most regions of the world. The best solution to this problem is for archaeologists to find and study these sites before they are compromised or destroyed. One way to facilitate the necessary rapid, wide area surveys needed to find these archaeological sites is through the generation of maps of probable archaeological sites from remotely sensed data. We describe an approach for identifying probable locations of archaeological sites over a wide area based on detecting subtle anomalies in vegetative cover through a statistically based analysis of remotely sensed data from multiple sources. We further developed this approach under a recent NASA ROSES Space Archaeology Program project. Under this project we refined and elaborated this statistical analysis to compensate for potential slight miss-registrations between the remote sensing data sources and the archaeological site location data. We also explored data quantization approaches (required by the statistical analysis approach), and we identified a superior data quantization approached based on a unique image segmentation approach. In our presentation we will summarize our refined approach and demonstrate the effectiveness of the overall approach with test data from Santa Catalina Island off the southern California coast. Finally, we discuss our future plans for further improving our approach.